



DOCKET NO: 195910US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
FREDERIC BORDEAUX, ET AL. : EXAMINER: ROSSI, J.
SERIAL NO: 09/622,044 :
FILED: DECEMBER 13, 2000 : GROUP ART UNIT: 1733
FOR: ANTI-LACERATION GLAZING :

REPLY BRIEF

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

In response to the Examiner's Answer dated August 6, 2004, please consider the following.

The Examiner holds that Claims 12, 15-19 and 28-29 are obvious over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al.

Independent Claim 12 relates to a method of making an anti-laceration automobile side window glazing comprising adhering two sheets of glass adapted to fit an automobile side window with an intercalary adhesive layer, wherein

said intercalary adhesive layer has a thickness of more than 0.76 mm;

each of said two sheets of glass has a thickness of from 1.5 to 3 mm;

each of said two sheets of glass has a core compressive stress in the central zone ranging from 20 to 50 MPa; and

said glazing, in a non-intact and bent state, has a Triplex Laceration Index of 7 or less.

Kramling fails to disclose or suggest a method of making an anti-laceration automobile side window glazing which has an intercalary adhesive layer having a **thickness of more than 0.76 mm** and that the glazing, in a non-intact and bent state, has a **Triplex Laceration Index of 7 or less**. In addition, Rieser fails to disclose or suggest the **core compressive stress** in the glass sheets and that the glazing, in a non-intact and bent state, has a **Triplex Laceration Index of 7 or less**.

Kramling's glazing contains a sheet of plastic sandwiched by two glass sheets (col. 3, line 41). At col. 5, lines 38-41, a laminate of glass/plastic/glass having the thickness of 2/0.76/2 is disclosed. However, 0.76 is different from the claimed "more than 0.76."

In addition, the reference states at col. 5, lines 32-41 that:

"...in order not to increase the weight of the panes-and their cost which is a direct function of their thickness when a toughened pane is substituted for a laminated pane-the aim is not excessively to increase the total thickness of the pane when this pane is composed of two glass sheets. Typically, a change is made from a toughened pane 3.2 mm thick to a laminate 2/0.76/2, the intermediate number corresponding to the thickness of the sheet of plastics material (PVB)."

The Examiner argues that a further increase of the plastic sheet would not be excessive (Examiner's answer, page 10, 1st full paragraph). There is no support for this assertion in Kramling. The reference only refers to a thickness of 0.76 mm as not being excessive. A further increase of the thickness of the laminate would certainly increase its weight and the cost. This is what Kramling wants to avoid. Applicants respectfully request the Examiner to consider that even a small increase in thickness increases the weight of the laminate tremendously, particularly if such laminate was used as an automobile side window because the area of the window has to be taken into account. Even further, in view of mass production of such laminates the increase in cost would be even bigger. In mass production, handling of

a heavier laminate would also be much more difficult. Kramling wants to avoid all this. Therefore, any increase of the thickness above 0.76 mm is excessive. Thus, Kramling teaches away from further increasing the thickness of the intermediate layer beyond 0.76 mm.

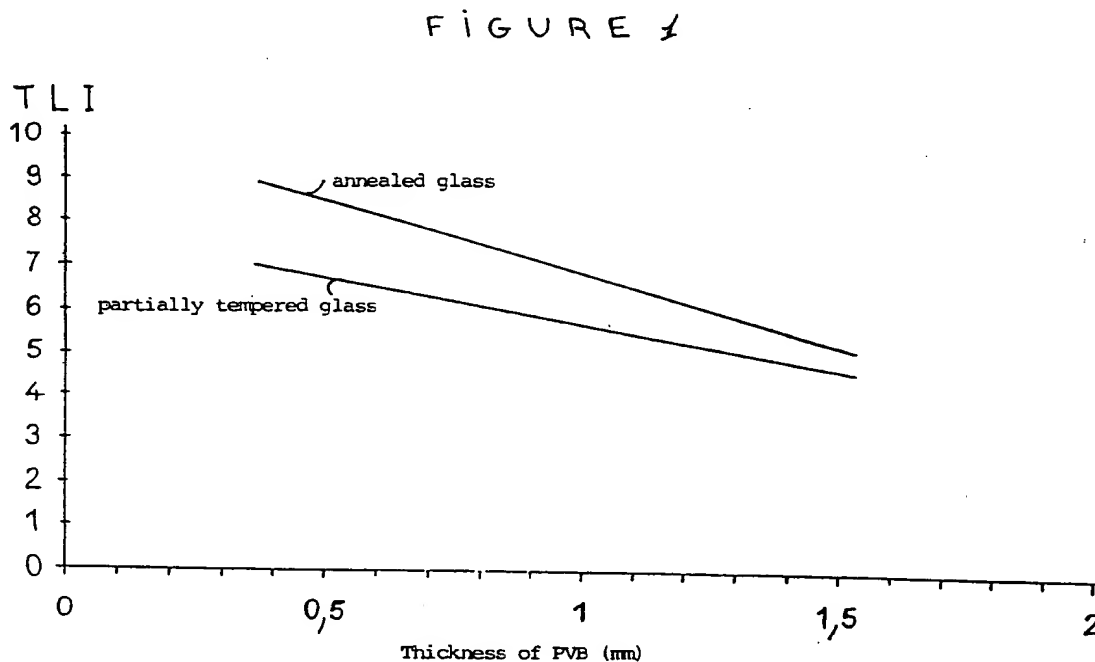
Further, the specification of the present invention states at page 2, last two lines to page 3, line 5, that the increase in the thickness of the intercalary adhesive has the effect of reducing the extent of the laceration phenomenon. Consequently, the present invention provides a laminated glazing with an intercalary adhesive layer with a thickness **in excess of 0.76 mm**. Kramling not only teaches away from further increasing the thickness of the intermediate layer beyond 0.76 mm, but the reference also fails to recognize that such increase would result in reducing the extent of the laceration phenomenon. The Examiner argues that “such benefit is a direct result of the laminate having the claimed glass thickness, adhesive thickness and core compressive stress” (Examiner’s Answer, page 10, last paragraph). However, as pointed out above, Kramling’s glazing does not have the claimed thickness and teaches away from further increasing the thickness of the intermediate layer beyond 0.76 mm. Thus, Kramling teaches away from a combination with Rieser. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification (*In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)). Clearly, the pane of Kramling having an interlayer thickness larger than 0.76 would make the pane too heavy and too costly. This is exactly what Kramling wants to avoid. The proposed modification would render the pane of Kramling unsatisfactory for its intended purpose (too heavy) and thus there is no motivation to make the proposed modification.

Since Kramling does not disclose or suggest the claimed thickness of more than 0.76 mm of the intercalary adhesive layer, the glazing of Kramling also cannot have the claimed Triplex Laceration Index of **7 or less in a non-intact and bent state**.

With regard to the failure of Kramling as well as Rieser to disclose the claimed TLI of 7 or less, the Examiner argues that the TLI is intrinsic to a glazing. See Examiner's Answer, page 12, 1st full paragraph. However, as also pointed out by the Examiner, there are many variables that influence the TLI. See Office Action of October 27, 2003, page 3, lines 3-6 from the bottom. Neither Kramling nor Rieser disclose how to make a pane having the claimed TLI of 7 or less. **The fact that the TLI is influenced by the thickness of the interlayer was only discovered by the present inventors and not by Kramling or Rieser.** Thus, Kramling in view of Rieser or Rieser in view of Kramling do not disclose all claim limitations.

Even further, any *prima facie* case of obviousness based on the cited prior art is rebutted by the significant reduction in injuries that result when a person strikes the claimed glazing, which "in a non-intact and bent state, has a Triplex Laceration Index of 7 or less".

Kramling and Rieser fail to suggest improved protection for people striking against **non-intact laminated glazing**. The superior anti-laceration properties of the glazing produced by the claimed method are discussed in specification at Example 1 and illustrated in Fig. 1, which is reproduced below.



The partially tempered glass in Fig. 1 has a surface stress of 45 ± 10 MPa, which is equivalent to a core compressive stress in the central zone approximately equal to 22 ± 5 MPa.

Specification at page 8, lines 20-21. In contrast, the annealed glass in Fig. 1 has a core compressive stress of approximately zero. Fig. 1 shows that laminated glazing produced by the method of independent Claim 12 using the compressively stressed partially tempered glass exhibits a significantly lower TLI, indicative of lacerations of less severity, than laminated glazing produced using the non-compressively stressed annealed glass.

Because the cited prior art fails to suggest the significant reduction in injury ("Triplex

Laceration Index of 7 or less") to persons upon striking **non-intact** and bent glazing produced according to the present invention any *prima facie* case of obviousness is rebutted.

Thus, Claims 12, 15-19 and 28-29 are Not Obvious over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al within the meaning of 35 U.S.C. §103(a).

Further, the Examiner holds that Claims 20-22 are obvious over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of page 2, 4th paragraph of the specification of the present invention.

Claims 20 and 22 depend indirectly on Claim 12.

Claim 20 relates to the method of Claim 18, wherein said intercalary adhesive layer comprises said polyethylene; and said polyethylene is in the form of a ionomer resin.

Claim 21 relates to the method of Claim 20, wherein said ionomer resin is a (meth)acrylic acid and ethylene copolymer.

Kramling and Rieser have been discussed above.

The specification states at page 2, 4th paragraph:

“Patent application EP 0 816 064 A1 relates to the lightening of the same type of glazing with retention of satisfactory mechanical properties, particularly in deflective strength. The use of thin sheets of glass, with thicknesses approximately equal to 0.5 mm, is made possible by the utilization of special, relatively hard intercalations, having a Young's modulus at least equal to 20 MPa, such as an ionomer resin, certain polyurethanes, certain polyesters, poly(ethylene terephthalate), certain acrylic resins.”

There is nothing in the paragraph that cures the defects of Kramling and/or Rieser with regard to TLI, thickness of the intercalary adhesive layer and core compressive strength in the central zone.

The Examiner argues that it would have been obvious to use as an interlayer

polyethylene in the form of an ionomer resin and as an ionomer resin which is a (meth)acrylic acid and ethylene copolymer. Examiner's Answer page 8, last paragraph. However, the paragraph at page 2 of the specification only discloses ionomers per se. It does not disclose or suggest polyethylene in the form of an ionomer resin. Further, the paragraph at page 2 of the specification fails to disclose or suggest that the ionomer resin is a (meth)acrylic acid and ethylene copolymer.

Thus, Claims 20-22 are Not Obvious within the meaning of 35 U.S.C. §103(a) over over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of page 2, 4th paragraph of the specification of the present invention.

Finally, the Examiner holds that Claims 26 and 27 are obvious over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of Fukawa et al.

Claims 26 and 27 depend directly on Claim 12.

Claim 26 relates to the method of Claim 12, wherein said anti-laceration glazing comprises at least one functional layer.

Claim 27 relates to the method of Claim 12, wherein at least one of the outer faces of the anti-laceration glazing comprises a plastic sheet.

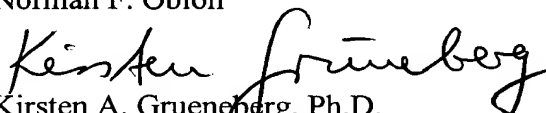
Fukawa fails to cure the defects of Kramling and/or Rieser with regard to TLI, thickness of the intercalary adhesive layer and core compressive strength in the central zone.

Thus, Claims 26 and 27 are Not Obvious within the meaning of 35 U.S.C. §103(a) over Claims 26 and 27 are obvious under 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of Fukawa et al.

Applicants continue to maintain that the presently claimed invention is patentable over the applied prior art. Accordingly, it is respectfully requested that the rejections be REVERSED.

Respectfully submitted,

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